ISSN (print) 0093-4666 © 2014. Mycotaxon, Ltd. ISSN (online) 2154-8889

MYCOTAXON

http://dx.doi.org/10.5248/127.97

Volume 127, pp. 97–101 *January–March 2014*

Distocercospora indica, a new dematiaceous hyphomycete from central India

Naveen Kumar Verma* & Akhila nand Rai

Department of Botany, Dr. H.S. Gour Central University, Sagar, M.P. 470 003, India

*Correspondence to: *nkverma_mycology@yahoo.com*

Abstract — The anamorphic fungus *Distocercospora indica* sp. nov., found on *Holoptelea integrifolia* (*Ulmaceae*), in East Forest Division, Chhindwara, Madhya Pradesh, India, is described, illustrated, and discussed.

Key words — biodiversity, foliar disease, cercosporoid fungus, taxonomic novelty

Introduction

Distocercospora N. Pons & B. Sutton, a genus of cercosporoid dematiaceous hyphomycetes (anamorphic fungi), was established by Pons & Sutton (1988) with *D. pachyderma* (Syd. & P. Syd.) N. Pons & B. Sutton (≡ *Cercospora pachyderma* Syd. & P. Syd.) on *Dioscorea alata* as type species. The slightly thickened darkened conidiogenous loci and pigmented conidia of *Distocercospora* resemble those in *Passalora,* from which *Distocercospora* differs in producing conidia that are consistently distoseptate. Before phylogenetic data were available, little significance was placed on distoseptation within the cercosporoid complex (Crous & Braun 2003). However, recent molecular sequence analyses of material of the type species (*D. pachyderma*) support *Distocercospora* as a separate genus phylogenetically distinct from *Passalora* (unpublished, U. Braun, in litt.).

Distocercospora is characterized by conidia that are solitary or (rarely) in short chains, distoseptate, subhyaline to pale brown, with thickened darkened hila, and schizolytic secession (Pons & Sutton 1988).

In addition to the new fungus described below, *Distocercospora* contains three species: *D. africana* Crous & U. Braun, *D. livistonae* U. Braun & C.F. Hill and *D. pachyderma* (Braun et al. 2006; Crous & Braun 1994; Pons & Sutton 1988).

Materials & methods

Living leaves with disease were collected during field trips. Detailed observations of morphological characters were carried out by means of a light microscope using oil immersion (1000×). Specimens for microscopic observations were prepared by hand sectioning. Water and lactophenol cotton blue were used as mounting media. Measurements were made of 30 conidia, hila and conidiophores and of 15 stromata. Line drawings were prepared at a magnification of 1000×. The holotype is deposited in Herbarium Cryptogamiae Indiae Orientalis (HCIO); Indian Agricultural Research Institute, New Delhi, India and the isotype in the collections of Naveen Verma Rai (NVR); Herbarium, Department of Botany, Dr. Harisingh Gour Central University, Sagar, Madhya Pradesh, India).

Taxonomy

Distocercospora indica N. Verma & A.N. Rai, **sp. nov.** Figs 1, 2

MycoBank MB 804806

Differs from other *Distocercospora* species by its much longer conidiophores and by conidia that are sometimes catenate and constricted at the septa.

TYPE: India, Madhya Pradesh, Chhindwara, East Forest Division, on living leaves of *Holoptelea integrifolia* (Roxb.) Planch. (*Ulmaceae*), Feb. 2009, coll. Naveen Kumar Verma, (**holotype** HCIO 51096; **isotype** NVR 84).

Etymology: Latin, *indica* refers to the country of origin.

Infection spots amphigenous, circular to irregular. Colonies hypophyllous, effuse, velvety, black. Mycelium internal; hyphae branched, septate, smooth, brown to dark brown, 3–5µm thick. Stromata well-developed, superficial, pseudoparenchymatous, brown to blackish brown, 30–160µm diam. Conidiophores macronematous, densely fasciculate, erect to procumbent, straight to flexuous, cylindrical, geniculate, simple to rarely branched at the apex, pluriseptate, thick-walled, brown to dark brown, light brown at the apex, 80–1000 × 4–6 µm. Conidiogenous cells integrated, terminal or intercalary, monoblastic or polyblastic, sympodial, denticulate (<4 µm high), scars conspicuously thickened and darkened, 1–1.5 µm wide. Conidia solitary to catenate, dry, acropleurogenous, simple, smooth, typically sickle-shaped, rarely straight, 0–5-distoseptate, sometimes constricted at the septa, thin-walled, smooth, fragile, obclavate to obclavate-cylindrical, apex obtuse, base obconically truncate, light brown to olivaceous-brown, 25–90 × 4–5 µm, hilum projecting, thickened and darkened, basal thickening ring-like, 1–1.5 µm wide.

Remarks — No *Distocercospora* species has been reported on *Holoptelea* or any other ulmaceous host. *Distocercospora africana* and *D. pachyderma* were reported on *Dioscorea* spp. (*Dioscoreaceae*) and *D. livistonae* on *Livistona chinensis* (*Arecaceae*).

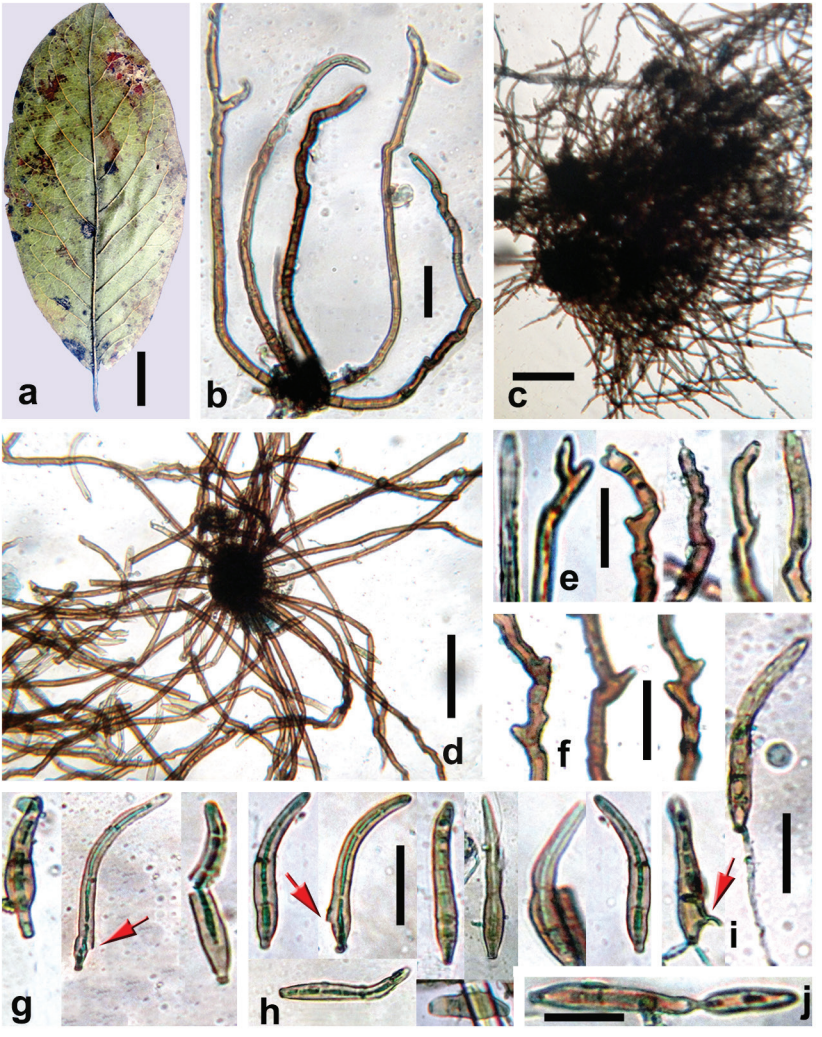

Fig. 1. *Distocercospora indica* (holotype).a. Symptoms; b. stroma, conidiophores, and conidium; c–d. well developed stroma; e. tip of conidiophores; f. intercalary conidiogenous cells; g. conidia with projected hilum; h. conidia; i. germinating conidia; j. catenate conidia. Scale bars: a = 1 cm; b, e–j = 20 µm; c = 100 µm; d = 40 µm.

Conidiophores of *D. indica* are much longer than in *D. africana* (15–80 × 3–10 µm), *D. livistonae* (40–280 × 3–6 µm) and *D. pachyderma* (75–600 × 3.5–6

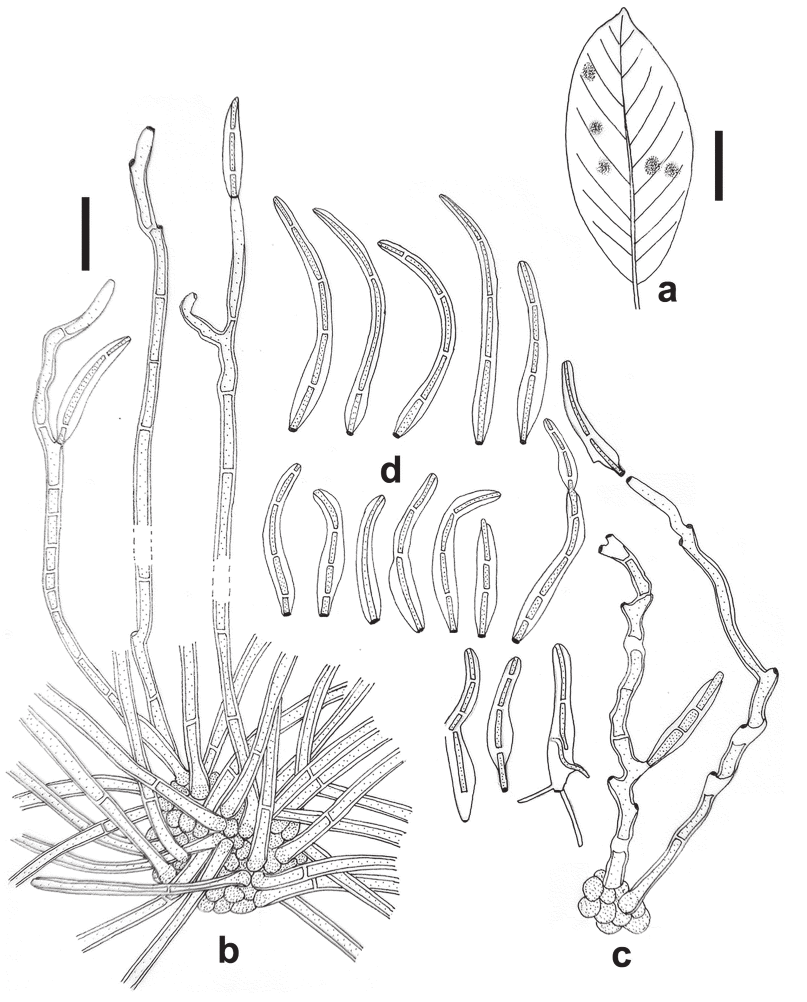

Fig. 2. *Distocercospora indica* (holotype).
a. Symptoms; b–c: stroma, conidiophores, and conidia; d. conidia.
Scale bars: a = 1 cm; b–d = 20 μm.

μm). Conidia of *D. indica* are somewhat shorter than in *D. africana* (30–110 × 3–5 μm) and somewhat narrower than in *D. pachyderma* (30–100 × 4.5–7 μm). Conidia of *D. indica* and *D. livistonae* (20–85 × 4–7 μm) are similar in size,

but those of *D. livistonae* are non-catenate and lack constrictions at the septa and a projecting hilum. A few conidia of *D. indica* also show a small pointed protuberance towards the proximal end (indicated by arrows in Fig. 1) that facilitates conidial germination.

Acknowledgments

The authors are grateful to Prof. Uwe Braun and Dr. Eric H.C. McKenzie for reviewing the manuscript. We also express our deep thanks to Dr. Shaun Pennycook for nomenclatural review. Authors' thanks are also due to the Curator, HCIO, New Delhi, for accepting the holotype specimen and providing an accession number. The financial assistance received through UGC New Delhi to NKV is gratefully acknowledged.

Literature cited

Braun U, Hill CF, Schubert, K. 2006. New species and new records of biotrophic micromycetes from Australia, Fiji, New Zealand and Thailand. Fungal Diversity 22: 13–35.

Crous PW, Braun U. 1994. *Cercospora* species and similar fungi occurring in South Africa. Sydowia 46(2): 204–224.

Crous PW, Braun U. 2003. *Mycosphaerella* and its anamorphs: 1. Names published in *Cercospora* and *Passalora*. CBS Biodiversity Series 1: 1–569.

Pons N, Sutton BC. 1988. *Cercospora* and similar fungi on yams (*Dioscorea* species). Mycological Papers 160:1–78.